

DIATOMS FROM THE BOTTOM SEDIMENTS OF THE EAST SIBERIAN LAKES

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The study of natural climatic changes in the past (Holocene) is important for obtaining knowledge on the time of these changes and their causes. The bottom sediments preserve diatoms in a good state, which are widely used as indicators of ecological conditions, as well as for reconstructions of the natural environment in the past. Many factors determine the development of diatoms: the temperature regime, the presence of biogenic elements (especially silicon for the construction of valves), pH of the environment, transparency, etc. In other words, they reflect the natural features of a water body. Climate fluctuations are associated with the changes in habitat conditions leading to restructuring the ecosystem of lakes.

We have studied the bottom sediments of lakes of different types and trophicities in both, mountainous and lowland landscapes. The lakes of the East Sayan (12 lakes) are located at altitudes of 1240 – 2496 m above sea level. The species diversity of the planktonic diatoms in the sediments of the lakes varied from 9 to 27 taxa. The abundance of diatoms reached 0.15-157 million valves/g. The share of planktonic diatoms was 0.7-99.3% of the total number. The maximum number was observed in the Vysokogornoe Lake due to the species of the genera *Cyclotella*, *Discostella*, *Aulacoseira*, and *Pliocaenicus*.

On the Baikal ridge, we have studied 9 lakes located at altitudes of 1220-1645 m above sea level and 4 lakes – at 456-520 m. Species composition was 8-16 taxa. The diatom abundance in the sediments of the lakes varied significantly, 0.1-292 million valves/g, as well as the share of planktonic diatoms was up to 96%. The species of the genera *Aulacoseira*, *Cyclotella* and *Pliocaenicus* dominated.

The Khamar-Daban lakes (6 lakes) were located at altitudes of 453-848 m above sea level. In the sediments of the lakes, we found 8-18 taxa of diatoms, which abundance ranged within 2.8-224 million valves/g, and the share of planktonic diatoms reached 20-98.5%. Maximum number was observed in Lake Kotokel. The species of the genera *Aulacoseira* and *Cyclotella* dominated.

The lakes of the Barguzin Range (7 lakes) were located at altitudes of 1360-1754 m, and Lake Florikha – at 524 m. The abundance of planktonic diatoms was 14-27 taxa. Their content in the sediments reached 1.3-98.1 million valves/g, and the share in the total number was 14-83%. The species of the genera *Aulacoseira*, *Pliocaenicus* and *Tabellaria* dominated. Some single species of the Baikal diatom complex, *Aulacoseira baicalensis*, *A. islandica*, *Cyclotella minuta* and *C. baicalensis*, were also found. They were present in a small amount in the sediments of a number of lakes of the East Sayan, Baikal and Khamar-Daban ranges, as well as Lake Oron.

The dominant complex of the sediments of mountain lakes mainly consists of the cosmopolitan species, acidophils indifferent to the pH of the environment, predominantly psychrophilic ones from the genera *Aulacoseira*, *Cyclotella*, *Discostella*, *Pliocaenicus*, and *Tabellaria*. These species prefer oligotrophic and oligo-mezotrophic waters. The dominants in the lakes located at low altitudes prefer mesotrophic and meso-eutrophic waters. These cosmopolitan species are eurythermal or moderate, which are alkaliphils indifferent to the pH of the environment. They are mostly representatives of the genera *Asterionella*, *Fragilaria*, *Synedra*, *Aulacoseira*, and *Stephanodiscus*. In some lakes, the species composition in the sediments did not change, and their abundance fluctuated sharply. In other lakes, some species were replaced by other species better adapted to new conditions. The index of species diversity (Shannon) showed that the change in diatom complexes occurred rarely in some lakes, and frequently – in other, which indicated the change in habitat conditions.

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